18. The solar cell of claim **17**, wherein the p-type subcell is a layer of p-type material.

19. The solar cell of claim **17**, wherein the n-type subcell is a layer of n-type material.

20. A method of forming a single junction solar cell, comprising:

arranging a p-type layer adjacent to an n-type layer to form a single p-n junction between the p-type layer and the n-type layer having a plurality of depletion regions for charge separation.

21. The method of claim **20**, further comprising coupling a first electrical contact coupled to the p-type layer and a second electrical contact coupled to the n-type layer.

22. The method of claim **20**, further comprising:

forming one of the p-type and n-type layers from an alloy selected from one of InGaN and InAlN; and

forming the other of the p-type and n-type layers from Si.

23. The method of claim **21**, further comprising forming a heavily counter-doped region in at least one of the p-type layer and the n-type layer respectively adjacent to at least one of the first and second electrical contacts.

24. The method of claim **20**, further comprising forming an insulating interlayer between the p-type layer and the n-type layer.

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